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ABSTRACT

Project TRABAJO (an academic and job program) and the Individualized Bilingual Education for Children with Retarded Development (a Chapter 720 Program) are two programs which provide supplementary and instructional support for 150 mildly and moderately mentally retarded New York City school students with limited English proficiency. The programs function cooperatively and complement each other's services. Project TRABAJO is designed to serve intermediate, junior, and senior high school students, while Chapter 720 serves the same population and elementary school students as well. Both programs encourage staff development, curriculum and materials development, and parental involvement. An evaluation of the program's impacts on student achievement for 1980-81, shows that objectives were attained for reading in English and Spanish, for oral proficiency in English and Spanish, and for mathematics, but not for career-education skills. These results indicate an improvement in students' mainstream language skills in 1980-81, compared to the 1979-80 academic year. Recommendations for program improvement include (1) an expanded program designed to identify, create, or adapt curriculum materials that are appropriate for the target population; (2) stronger efforts to encourage parental involvement; and (3) more funds for instructional materials for the mentally retarded. (AOS)

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ANNUAL EVALUATION REPORT

E.S.E.A. TITLE VII

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Project TRABAJO
and
Individualized Bilingual
Education for Children with
Retarded Mental Development

1980-81

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May 17, 1982

A SUMMARY OF THE EVALUATION OF THE
1980-81 TITLE VII PROJECT TRABAJO AND
CHAPTER 720 INDIVIDUALIZED BILINGUAL EDUCATION
FOR CHILDREN WITH RETARDED MENTAL DEVELOPMENT

These programs provided supplementary instructional and support services to approximately 150 students served in self-contained classes for mildly and moderately mentally-retarded pupils with limited-English proficiency. Project TRABAJO served six middle and secondary schools; the Chapter 720 program served these same six schools and five elementary schools. Although these programs were distinct and funded separately they functioned cooperatively and served many of the same students. Chapter 720 funds provided for seven paraprofessionals who assisted the classroom teachers in the individualization of instruction and materials development. Project TRABAJO funds were used to provide additional administrative support through a project coordinator, an office aide, and a school aide and resource services through a resource specialist. Both programs supported staff development, curriculum and materials development, and parent-involvement activities.

Analyses of pupil achievement data indicated that five of the six objectives for these programs were attained; the objectives were attained for reading in English and Spanish, oral proficiency in English and Spanish, and mathematics; these areas were affected by both programs. Although supplementary analysis revealed a statistically significant program effect, the objective for career education was not attained; this objective was specific to Project TRABAJO.

Comparison of these findings with those for the 1979-80 funding year indicate gains in two areas. While the objectives for reading and oral proficiency in Spanish were attained last year, the objectives for reading and oral proficiency in English were not attained; all four objectives were attained for the 1980-81 funding year. Thus, relative to last year, this year's program cycle was more effective in promoting growth in mainstream-language skills.

Observations of this year's programs indicated that there was effective communication between staff and successful articulation of services.

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I. INTRODUCTION

This report presents the findings of the evaluation of two projects that served mildly and moderately mentally-retarded students of limited-English proficiency (L.E.P.) in the New York City Public Schools during the 1980-81 school year: the E.S.E.A. Title VII program, Teaching Retarded Adolescents Bilingually: Academics and Job Orientation (Project TRABAJO); and the Chapter 720 program, Individualized Bilingual Education for Children with Retarded Mental Development (hereafter referred to as Chapter 720). Although these programs were distinct and funded separately, they functioned cooperatively with each supplementing the services provided by the other as well as those services provided through tax-levy funds. Both programs shared many of the same needs, objectives, and concerns and served many of the same students: Project Trabajo served intermediate, junior high school, and high school students; Chapter 720 served these same students as well as an elementary-school population. Since the two programs operated together, the evaluation findings for these programs are presented together in this report.

Bilingual instruction is provided for mildly- and moderately-retarded L.E.P. pupils in the New York City Public Schools by 14 tax-levy-funded teachers in self-contained classrooms administered by the Division of Special Education (D.S.E.). Chapter 720 funds provided for seven paraprofessionals who supported and assisted these classroom teachers. Project TRABAJO funds were used to provide additional administrative support, and supplementary and resource services for the classes in middle and secondary schools. Both the Chapter 720 program and Project TRABAJO

supported staff development, curriculum and materials development, and parent-involvement activities. The total D.S.E. program for mentally retarded L.E.P. students had an enrollment of 200. Approximately 80 of these students were served by Project TRABAJO while the Chapter 720 program served approximately 150.

These programs were evaluated through (1) the collection and analysis of pupil achievement data using a variety of published and project-developed instruments and (2) the collection and aggregation of data indicating the degree and quality of program implementation through direct observations and interviews by Office of Educational Evaluation. The observations and interviews focussed upon activities specific to and personnel funded through each program. Accordingly, the findings from the analyses of these data are presented in separate chapters for each program. However, since both programs affected pupil achievement the findings from the analyses of test data are presented in a single chapter. Furthermore, the conclusions and recommendations of this evaluation are presented in a single chapter which addresses these programs both collectively and individually.

II. EVALUATION OF THE IMPLEMENTATION OF PROJECT TRABAJO

PROGRAM DESCRIPTION

This program was designed to develop the personal, social, academic, and job-related skills of approximately 80 Spanish-speaking L.E.P. students in classes for the mildly and moderately retarded at the following schools:

- .Junior High School 99, Manhattan;
- .Junior High School 204, Queens;
- .Intermediate School 291, Brooklyn;
- .Intermediate School 293, Brooklyn;
- .Brandeis High School, Manhattan; and
- .Eastern District High School, Brooklyn.

At these sites, the program operated throughout the entire six hour and 20 minute school day.

The project staff included a coordinator, one resource specialist, one office aide, and a school aide. The project coordinator and two resource specialists (one tax-levy funded) assisted the classroom teachers in the implementation of the project's career-education curriculum. This curriculum is an adaptation of the state-validated General Job Skills Curriculum Guide, originally developed under an E.S.E.A. Title IV-C grant. The curriculum stresses relevant career-education concepts and skills and includes activities for developing appropriate personal, social, and occupational skills.

Academic instruction was provided in the students' first language, Spanish, and in their second language, English. English-language proficiency was strengthened through English-as-a-second-language (E.S.L.) instruction. Cognitive/academic instructions emphasized functional, work-related, and survival skills. Thus, instruction in E.S.L., Spanish-language arts, social studies, mathematics, science, cultural heritage, music, art,

motor/physical education, and the industrial arts is tied into the dominant curriculum themes, career awareness, functional literacy, and interpersonal skills.

Individualization of instruction was stressed through in-service workshops conducted throughout the school year, and was implemented with the assistance of the participating paraprofessionals (funded through tax-levy and Chapter 720) and resource specialists. The classroom teachers and paraprofessionals worked with small groups of students using a diagnostic-prescriptive approach. Instruction was personally tailored to each students' needs, a critical program feature due to the wide range in age, language-proficiency levels, and academic achievement.

Students participating in the program were selected by screening through Consent-Decree evaluations, evaluation by the Committees on the Handicapped (C.O.H.), and referral by supervisors, teachers, or other pedagogical staff with C.O.H. approval.

OBSERVATION OF INSTRUCTION

Observations of classroom instruction were conducted by the evaluation consultant between December, 1980 and May, 1981. During these observations most of the teachers in the program exhibited strong skills in teaching through both languages, the ability to provide a learning challenge that was compatible with the individual learning capacity of the target students, and an awareness of the students' bicultural identity. In addition, the teachers generally displayed an effective system of discipline and classroom management and were successful in providing a pleasant, well-organized education environment.

The decor of most of the classrooms included displays of the students' work as well as displays reflecting the program's major curricular themes (career awareness, functional literacy, and interpersonal skills) as well as cultural heritage. Classroom libraries offered a wide range of recreational reading materials in both languages, but high-interest books at appropriate reading levels were not commercially available.

The classroom teachers exhibited an excellent rapport with the students. Teachers demonstrated knowledge of and concern for the students' linguistic, cultural, personal, and individual cognitive/academic needs which enhanced pupil motivation. Other keys to the positive educational environment seemed to rest in the close communication between the program coordinator and the principals and staff of most sites, and the efforts made to involve parents in the educational process.

Equipment and instructional supplies were abundant at all sites. The program coordinator, in conjunction with the coordinator of the Chapter 720 paraprofessional program, supplied the classrooms with useful texts and equipment, including overhead projectors, tape recorders and other hardware which the students seemed to enjoy using independently.

Spanish-language-arts instruction emphasized receptive and expressive oral and written communication skills. Students were grouped for instruction according to the results of the Leamos Test of Spanish Reading and informal teacher observations. Specific activities focused on vocabulary development, sentence patterns, and the expression of feelings and ideas. Many of the students, who were up to 21 years of age, were in the process of mastering elementary-level developmental reading skills.

Spanish reading materials used by the teachers and paraprofessionals included Cartilla Foretica (Cultural Puertorriquena, Inc.), Santillana Bilingual Series, A Cada Paso (McGraw Hill), Bureau C.R.M.D. Bilingual Program Guides, and Action Reading Kits (Educational Activities). Since some of these materials were not geared for mentally-retarded students, they were adapted by the teachers and paraprofessionals for group and individual classroom activities.

Observations of classroom practices indicated that the Leamos testing procedure was only part of the overall process of identifying the Spanish-literacy needs of each student. In planning integrated instructional sequences (e.g., Spanish-language arts and career awareness) an informal assessment of functional language proficiency, which is not tested by Leamos, was employed. The Leamos test, like the available commercially-developed materials, was useful only insofar as the developmental reading difficulties of these students approximated those of their non-retarded bilingual peers. Since this was rarely the case, the educational personnel were forced to devise alternative methods of assessing native-language reading skills.

The career-education curriculum was enriched through supplemental activities developed by the teachers and paraprofessionals, under the guidance of the coordinator. Students usually spent five periods each week learning concepts and skills associated with occupational roles. The curriculum was integrated, to an extent, with the Spanish-language arts and E.S.L. curricula. The students generally showed strong motivation in these activities which included values-clarification activities, instruction employing teacher-made and commercially-prepared printed materials and audiovisuals, use of newspapers and magazines, and cultural and vocational trips.

Observations of E.S.L. instruction indicated that the basic communication skills of listening, speaking, reading, and writing were taught through a variety of techniques and exercises. Teachers and paraprofessionals were observed using audio-lingual drills along with visual techniques and materials to reinforce language learning. Students were also grouped for individualized E.S.L. instruction. In conjunction with E.S.L., the students were taught developmental reading skills in English. The Random House Criterion-referenced test was used to diagnose pupils' needs. The instructional approaches for E.S.L. are discussed further in the next chapter on the Chapter 720 program.

Project TRABAJO also provided instruction in cultural heritage to instill in the students pride in and awareness of their cultural backgrounds. While the other content areas were covered on a daily basis, cultural heritage lessons were typically provided two or three times per week. The diversity of these students' backgrounds necessitated a multi-ethnic curriculum which included historical and cultural characteristics of the Spanish-speaking Caribbean islands, Latin American countries, and the United States.

Cultural-heritage instruction proved to be a highly motivating springboard to learning in the other academic areas of the program's overall curriculum. Teachers indicated that cultural lessons also improved students' self-image.

STAFF DEVELOPMENT

The instructional staff participated in three full-day inservice workshops designed to increase their practical knowledge and skills in bilingual instruction to more effectively serve the students. Because of the complex nature of the curriculum and the students' needs, the focus of these workshops

was on curriculum integration.

The project coordinator maintained especially high standards in staff development, evidenced by the successful classroom atmospheres observed. Classroom personnel followed an organized schedule which was closely monitored. In addition, small-group instruction and individualization was maintained with the help of the paraprofessionals. The project coordinator provided continuous feedback regarding classroom instruction, use of resources, and additional resources needed.

Generally, the teachers participating in the program were well prepared. Most had received training in special education and bilingual education. Additional staff development was provided through the teachers' completion of approved graduate courses related to bilingual special education; some teachers were pursuing graduate degrees in this area.

PARENT INVOLVEMENT

Despite the fact that program students often attended sites that were distant from one another and from their homes, the program generated a modest degree of parent involvement. The 11-member project advisory committee held eight monthly meetings through the year at which the coordinators presented reports on the objectives and progress of the two programs and sought suggestions and participation from parents. The committee prepared and distributed a newsletter for parents of all program students. Average attendance was about three.

The program coordinators also conducted 12 parent workshops which addressed issues of concern to parents of handicapped C.E.P. students. Topics

included: bilingual special education in the New York City public schools, use of behavior modification, educational activities at home, and sex education. Average attendance was ten.

II. EVALUATION OF THE IMPLEMENTATION OF THE CHAPTER 720 PROGRAM

PROGRAM DESCRIPTION

This program was designed to individualize instruction in New York City's bilingual classes for mildly and moderately retarded students. The project operated during the regular school day at twelve sites at the elementary-, middle-, and high-school levels. At the middle and high schools, the program operated cooperatively with Project TRABAJO.

The Chapter 720 program provided funds for paraprofessionals to aid the bilingual classroom teacher in individualizing instruction in the areas of Spanish-language arts, E.S.L., and mathematics. The paraprofessionals were trained and supervised to develop a close and effective working relationship with the teachers to meet the needs of the students.

In addition to the six schools served by Project TRABAJO, the program served the following elementary schools:

- .P.S. 102, Manhattan;
- .P.S. 17, Brooklyn;
- .P.S. 10, Manhattan;
- .P.S. 242, Brooklyn; and
- .P.S. 150, Queens.

During the 1980-81 school year, a total of 11 paraprofessionals (seven were funded by Chapter 720) worked together with 14 classroom teachers serving approximately 150 L.E.P., Spanish-speaking, mentally-retarded students, ranging in age from seven to 21 years. The Chapter 720 program was supervised by the Consent Decree Coordinator, who worked closely with the coordinator of Project TRABAJO. The program also had the services of a tax-levy resource specialist.

Participants in the program were selected through referral, evaluation,

and placement by the C.O.H., referral and placement by the Consent-Decree Coordinator or referral by special education teachers, supervisors, or other personnel.

OBSERVATION OF INSTRUCTION

Observations by O.E.E. indicated that, generally, the intent of the program was realized. That is, the support provided by the paraprofessionals facilitated the individualization of instruction and the attention to each students' specific learning characteristics and educational needs. The importance of instructional individualization was highlighted by the wide range in abilities and learning styles observed among the students.

A positive educational atmosphere was evident in most of the classes that were observed. By and large, the classrooms observed were very orderly and cheerfully decorated with student artwork and writing in English and Spanish, and stimulating posters.

E.S.L. instruction was provided each day. The lessons employed an array of adapted materials, dittos, visuals, flash cards, and games. The teachers used a variety of interesting visual aids to teach new vocabulary and prompt the development of oral-language and communication skills. Specific materials observed in use included Steps to English (McGraw Hill), D.L.M. Language Development Cards and Games, Everyday English as a Second Language (Voluntad Publishers), and resources also used to develop language-arts skills in English. In many cases, the paraprofessionals had worked with the teachers in adapting or creating these materials for classroom activities.

English-reading skills were taught through a variety of texts and materials such as the Barnell Loft Multiple Skills Series, Santillana Readers, phonics skills texts and workbooks by the Modern Curriculum Press, SRA Individualized Reading Program, Spellbinder, and Uptown-Downtown Bank Street Readers. Individualization of instruction in this area was carried out well, with the paraprofessionals working with students in small groups, pairs, or individually during English-reading lessons. The bulletin boards of most classrooms displayed student work in both English and Spanish to highlight the importance of each language.

Spanish-language arts and reading instruction was also fully individualized with the help of the paraprofessionals. Typically, students were taught in at least three groups categorized by level. The beginning level usually involved phonics, blends, and sight words while the more advanced students practiced sentence formation and comprehension. A variety of multimodality techniques were employed such as flannel boards and picture cards. These appeared to be highly effective in eliciting student interest. Materials used to develop the students' command of the sounds, syntax, and vocabulary of Spanish included Cartilla Fonetica, Santillana Bilingual Series, Caracolitos (Economy Company), A Cado Paso, and curriculum guides issued by the Division of Special Education (Una Experiencia En Lectura and Una Guia para la Ensenanza de la Poesia en las Clases Bilingues Especiales.)

Mathematics skills were taught bilingually. The Spanish language was often used as a bridge to help students understand mathematical principles in English. Thus, many concepts were presented in both Spanish and English to aid retention. Paraprofessionals were observed teaching math using mate-

rials such as an abacus, coins and bills, concrete objects such as apples and oranges which could be divided into fractional pieces, picture cards of familiar animals, and flash cards. They worked with groups of two or three students or with individual students at special centers set up in the classroom for arithmetic activities. In addition, programmed instructional series were employed such as the Silver Bardett Mathematics Series and the SRA Individualized Skills Program.

Along with their involvement in direct small-group instruction, the paraprofessionals worked closely with the teachers in helping implement the individual education programs (IEP) for each student. In every classroom situation observed by the evaluator, the paraprofessional played a truly valuable role in planning daily lessons, teaching students, preparing materials for future lessons, classroom management, discipline, and helping administer, record, and interpret tests in the ongoing assessment of the students' progress. Through their observed energy, commitment, and perseverance, the paraprofessionals, under the supervision of the tax-levy teachers, became full-fledged partners in the total educational process.

STAFF DEVELOPMENT

The program coordinator selected paraprofessionals who demonstrated bilingual competence, bicultural sensitivity, and expertise in special education. Paraprofessional workshops were held every two weeks to further develop the competence of the paraprofessionals by keeping them abreast of current research and development in the field of bilingual special education and assisting them in identifying, developing, and adapting appropriate materials.

The 20 training sessions covered instructional planning, criterion-

referenced tests, classroom applications of cognitive theory, the role of learning centers, and the integration of music, poetry, crafts, and photography into the academic curriculum. On average, ten of the eleven program paraprofessionals attended each session.

The outcome of the staff development workshops were most apparent in the observations of the effectiveness of paraprofessionals in the classroom, both in their direct instruction of students and in their assistance in materials development. In one classroom, for example, there was a set of life-size marionettes which the paraprofessional had created. Many teachers acknowledged the skills and ideas the paraprofessionals had gained as a result of their participation in staff workshops.

PARENT INVOLVEMENT

The Chapter 720 program coordinator worked together with the coordinator of Project TRABAJO to secure the involvement of parents. Dissemination of information to parents, and parent workshops were sponsored by both programs. As observed in previous evaluations, attaining a high level of parent involvement continues to be extremely difficult. Efforts have been made by the coordinators and staff to inform all parents of meetings which were held for the purpose of information sharing and parent training and modest success was achieved. (For further description see the section on parent involvement in the Project TRABAJO chapter of this report.) The distances parents had to travel, as well as occupational or economic constraints, appeared to limit the level of parent involvement.

Parent involvement continues to be an elusive achievement for many basic

educational programs. The results of a recently-completed, nation-wide study on federally-funded programs may shed light on how best to increase parent participation in educational programs.

IV. QUANTITATIVE EVALUATION

This chapter presents the results of analyses of test data gathered to measure the attainment of the objectives of the Chapter 720 program and Project TRABAJO. Since these programs functioned cooperatively and served many of the same students, virtually every pupil measure, with the possible exception of the career-education instrument, was influenced by the activities of both programs.

The following sections present analyses of attendance and achievement data for the total population, and separately for the elementary students who were served only by chapter 720 and the middle and secondary students, who were served by both Project TRABAJO and Chapter 720.

ATTENDANCE

Data were reported for 167 students for the 1980-81 school year. Complete achievement data were submitted for a total of 119 students: 67 were in elementary schools; 52 were in middle and high schools. The students were served by each program five days a week for the full school day (six hours and 20 minutes). For the total population, the mean number of days attended, out of a possible total of 184, was 137 days (S.D. = 40.7); the median was 150. The mean percentage of attendance was 82.9 percent (S.D. = 16.1). The elementary students attended a mean of 134.7 days (S.D. = 41.4) with a median of 149.6. The mean percentage of attendance for this group was 83.6 (S.D. = 15.3). The middle and high school students attended a mean of 140 days (S.D. = 39.9) with a median of 152.5. The mean percentage of attendance was 82.1 (S.D. = 17.2).

OBJECTIVE 1. ORAL PROFICIENCY IN SPANISH

An objective of both programs was that by June 1981, the students would show statistically significant improvement, at the .05 level, in oral proficiency in Spanish. The objective was measured by comparisons of Spanish-language samples taken during October, 1980 and June, 1981. The samples consisted of the students' oral productions in response to the presentation of pictorial stimuli that related to the program's curriculum. Stimuli were presented individually until five sentences were produced. The average sentence length of these productions was scored in I units by a language proficiency expert. The mean pre- and posttest scores were compared through the application of t tests for correlated samples.

Table 1 presents the results of the comparisons of the mean pre- and posttest Spanish-language-proficiency scores for the total population and each of the groups (i.e., the elementary students and the middle and high school students. Statistically significant gains were observed for all three comparisons. Furthermore, the mean gains for the three analyses were practically the same magnitude: 1.6 I units for the total population and the elementary students; 1.7 I units for the middle and high school students. Thus, the findings indicate that the criterion for this objective was met.

OBJECTIVE 2. ORAL PROFICIENCY IN ENGLISH

In addition to significant growth in Spanish oral competence, both programs proposed that by June 1981, the students would show statistically significant improvement, at the .05 level, in oral proficiency in English. The objective was measured in the manner described above for Objective 1.

TABLE 1

COMPARISONS OF THE MEAN PRE- AND POSTTEST
SPANISH-LANGUAGE-PROFICIENCY SCORES FOR THE
TOTAL POPULATION AND EACH GROUP
(MEASURED IN T UNITS)

<u>Population</u>	<u>Language Sample</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean Gain</u>	<u>t</u> (d.f.)
Total Population	Pre	5.2	2.5	1.6	8.0** (111)
	Post	6.8	2.0		
Elementary ^a	Pre	4.9	2.7	1.6	5.9** (65)
	Post	6.5	1.9		
Middle and High School	Pre	5.6	2.3	1.7	5.4** (45)
	Post	7.3	2.0		

**p < .01

^aThis group was served only by Chapter 720.

Table 2 presents a summary of the comparisons of the mean pre- and post-test oral-English-proficiency scores for the total population and the two groups. Statistically significant gains were observed for all three comparisons. The mean gains were 1.6 I units for the middle and high school students, 1.4 for the total population, and 1.2 for the elementary students. Thus, the findings indicate that the criterion for the objective was met.

OBJECTIVE 3. SPANISH READING MASTERY

The mastery of skills in Spanish reading was an objective of both programs. Specifically, the objective stated that by June 1981, at least 80 percent of the target students would master at least four new objectives in Spanish reading as measured by the Leamos Spanish Reading Test. Test administration was ongoing, that is the students were tested for the mastery of specific reading objectives upon the completion of each instructional unit. Attainment of the criterion for this program objective was determined by the construction of a frequency distribution of the total number of objectives mastered by the students throughout the school year.

Table 3 presents the frequency distribution of Spanish-reading skills mastered by the total population; Table 4 and Table 5 present the same data for the two groups. Inspection of these tables reveals that the criterion was attained by the total population and both groups. At least four new objectives in Spanish reading were mastered by 87.4 percent of the total population, 82 percent of the elementary students, and 94.2 percent of the middle and high school students. Mastery for the total population ranged from a low of no skills mastered (one student, 0.8 percent of the population) to a high of eight skills (29 students, 24.4 percent). The mean number of

TABLE 2

COMPARISONS OF THE MEAN PRE- AND POSTTEST ENGLISH-
LANGUAGE-PROFICIENCY SCORES FOR THE
TOTAL POPULATION AND EACH GROUP
(MEASURED IN T UNITS)

<u>Population</u>	<u>Language Sample</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean Gain</u>	<u>t</u> (<u>d.f.</u>)
Total Population	Pre	4.4	2.5	1.4	6.2** (109)
	Post	5.8	2.1		
Elementary ^a	Pre	4.3	2.5	1.2	4.5** (63)
	Post	5.5	1.9		
Middle and High School	Pre	4.6	2.7	1.6	4.3** (45)
	Post	6.2	2.3		

**p < .01

^aThis group was served only by Chapter 720.

TABLE 3

FREQUENCY DISTRIBUTION OF THE MASTERY OF
SPANISH-READING OBJECTIVES FOR THE
TOTAL POPULATION

<u>Number of Objectives Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
8	29	24.4	24.4
7	13	10.9	35.3
6	17	14.3	49.6
5	22	18.5	68.1
4	23	19.3	87.4
3	9	7.6	95.0
2	4	3.4	98.4
1	1	0.8	99.2
0	<u>1</u>	<u>0.8</u>	<u>100.0</u>
	119		

NOTE: The data for Tables 3, 4, and 5 are based on the Leamos Spanish Reading Test.

More than 87 percent of the total population mastered at least four new Spanish-reading skills; the criterion of 80 percent was exceeded.

TABLE 4

FREQUENCY DISTRIBUTION OF THE MASTERY OF SPANISH
READING OBJECTIVES FOR THE ELEMENTARY STUDENTS

<u>Number of Objectives Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
8	10	14.9	14.9
7	7	10.4	25.3
6	12	17.9	43.2
5	14	20.9	64.1
4	12	17.9	82.0
3	8	11.9	93.9
2	3	4.5	98.4
1	<u>1</u>	<u>1.5</u>	<u>99.9</u>
	67		

NOTE: Cumulative percent does not total 100 percent due to rounding error.

.Eighty-two percent of the students mastered at least four skills in Spanish reading; the criterion of 80 percent was exceeded.

TABLE 5

FREQUENCY DISTRIBUTION OF THE MASTERY OF SPANISH-
READING OBJECTIVES FOR THE MIDDLE AND HIGH SCHOOL STUDENTS

<u>Number of Objectives Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
8	19	36.5	36.5
7	6	11.5	48.0
6	5	9.6	57.6
5	8	15.4	73.0
4	11	21.2	94.2
3	1	1.9	96.1
2	1	1.9	98.0
1	0	0	98.0
0	1	1.9	99.9

NOTE: Cumulative percent does not total 100 percent due to rounding error.

.More than 94 percent of the students mastered at least four new skills in Spanish reading; the criterion of 80 percent was exceeded.

skills mastered was six, the median 6.3, and the mode eight. The means for the elementary students and the middle and high school students were 5.2 skills and 5.6 skills, respectively. More than 36 percent of the latter group mastered eight new objectives. All of the objectives mastered by both groups were associated with the fundamental stage of the Leamos Spanish Reading Test. Ninety-one percent of the objectives mastered by the elementary school students were at the primary level of the fundamental stage; nine percent were at the advanced level. For the middle and high school students, 75 percent of the objectives mastered were at the primary level; 25 percent were at the advanced level of the fundamental stage.

OBJECTIVE 4. ENGLISH READING MASTERY

The mastery of skills in English reading by those students who received instruction in that subject was an objective of both programs. The objective proposed that by June 1981, 80 percent of those students receiving English-reading instruction would master at least four new objectives as measured by the Random House Criterion Reading Test. Test administration was ongoing.

Table 6 presents the frequency distribution of the number of English-reading skills mastered by the total population. Forty-eight students received instruction in English reading. The number of skills mastered ranged from a low of two (one student, 2.1 percent of the population) to a high of ten (seven students, 14.6 percent). More than 87 percent of the students mastered at least four English-reading objectives. Thus, the criterion for this objective was surpassed. The mean number of objectives mastered was

TABLE 6

FREQUENCY DISTRIBUTION OF THE MASTERY OF
ENGLISH-READING SKILLS BY THE TOTAL POPULATION OF
THOSE STUDENTS WHO RECEIVED ENGLISH-READING INSTRUCTION
(MEASURED BY THE RANDOM HOUSE CRITERION READING TEST)

<u>Number of Skills Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
10	7	14.6	14.6
9	1	2.1	16.7
8	1	2.1	18.8
7	8	16.7	35.5
6	3	6.3	41.8
5	7	14.6	56.4
4	15	31.3	87.3
3	5	10.4	97.7
2	<u>1</u>	<u>2.1</u>	<u>99.8</u>
	48		

NOTE: Cumulative percent does not sum to 100 percent due to rounding error.

More than 87 percent of the students mastered at least four new skills in English reading; the criterion of 80 percent was surpassed.

5.7; the mode was four.

Tables 7 and 8, respectively, present the frequency distribution of English-reading mastery for the elementary school students, and the middle and high school students. Both groups surpassed the criterion for the English-reading objective: 94.7 percent of the elementary students mastered at least four objectives; 82.6 percent of the middle and high school students did the same. The mean number of objectives mastered was 5.9 for former and 5.5 for the latter. A larger percentage of the older students received instruction in English-reading than did the younger students: English reading was taught to 28 percent of the former and 55 percent of the latter. Overall, 40 percent of the total population received instruction in English reading.

OBJECTIVE 5. MASTERY OF MATHEMATICS SKILLS

Although both programs focused upon the mastery of specific objectives in mathematics, only the chapter 720 program had a formal mathematics objective. The objective stated that by June, 1981, 80 percent of the target students would master at least four new skills in mathematics as measured by the KeyMath Diagnostic Arithmetic Test. As for the other criterion-referenced instruments employed in this evaluation, test administration was ongoing.

Table 9 presents the frequency distribution of the number of math skills mastered by the total population. Mastery ranged from a low of zero new skills (one student, 0.8 percent of the population) to a high of 12 skills (49 students, 41.2 percent). Almost 96 percent of the population mastered at least four new skills. The mean number of skills mastered was 8.9; the median was 9.8 and the mode was 12. Thus, the criterion for this objective was surpassed.

TABLE 7

FREQUENCY DISTRIBUTION OF THE MASTERY OF
ENGLISH-READING SKILLS BY THOSE ELEMENTARY SCHOOL STUDENTS
WHO RECEIVED ENGLISH-READING
INSTRUCTION
(MEASURED BY THE RANDOM HOUSE CRITERION READING TEST)

<u>Number of Skills Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
10	3	15.8	15.8
9	1	5.3	21.1
8	0	0.0	21.1
7	3	15.8	36.9
6	2	10.5	47.4
5	2	10.5	57.9
4	7	36.8	94.7
3	<u>1</u>	<u>3.3</u>	<u>100.0</u>
	19		

.More than 94 percent of the students mastered at least four new skills in English reading; the criterion of 80 percent was surpassed.

TABLE 8

FREQUENCY DISTRIBUTION OF THE MASTERY OF
ENGLISH-READING SKILLS BY THOSE MIDDLE AND HIGH SCHOOL STUDENTS
WHO RECEIVED ENGLISH-READING INSTRUCTION
(MEASURED BY THE RANDOM HOUSE CRITERION READING TEST)

<u>Number of Skills Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
10	4	13.8	13.8
9	0	0.0	13.8
8	1	3.4	17.2
7	5	17.2	34.4
6	1	3.4	37.8
5	5	17.2	55.0
4	8	27.6	82.6
3	4	13.8	96.4
2	<u>1</u>	<u>3.4</u>	<u>99.8</u>
	29		

NOTE: Cumulative percent does not sum to 100 percent due to rounding error.

More than 82 percent of the students mastered at least four new skills in English reading; the criterion of 80 percent was surpassed.

TABLE 9

FREQUENCY DISTRIBUTION OF THE MASTERY
OF MATH OBJECTIVES BY THE TOTAL POPULATION
(MEASURED BY THE KEYMATH TEST)

<u>Number of Skills Mastered</u>	<u>Number of Students</u>	<u>Relative Percent</u>	<u>Cumulative Percent</u>
12	49	41.2	41.2
11	6	5.0	46.2
10	6	5.0	51.2
9	5	4.2	55.4
8	9	7.6	63.0
7	9	7.6	70.6
6	15	12.6	83.2
5	7	5.9	89.1
4	8	6.7	95.8
3	0	0.0	95.8
2	3	2.5	98.3
1	1	0.8	99.1
0	<u>1</u>	<u>0.8</u>	<u>99.9</u>
	119		

NOTE: Cumulative percent does not total 100 percent due to rounding error.

.More than 95 percent of the students mastered at least four new skills; the criterion of 80 percent was surpassed.

To determine the specific mathematics skills that were mastered by the programs' population, the percentage of students mastering at least one new skill on the various subtests of the KeyMath Test was analyzed. Table 10 presents these data by school level. The subtest on which the largest percentage of elementary school students showed mastery were Numeration (56.4 percent of the elementary school students) and Geometry (53.8 percent). The former measures concepts critical to the understanding of our number system and its functional applications; the latter examines the recognition of particular shapes or symbols. Other subtests on which a large percentage of the elementary-level students showed mastery were the operational subtests, Subtraction (46.2 percent) and Numerical Reasoning (41.0 percent), and the functional applications subtest, Time (43.6 percent).

The students in middle-level schools, similar to those on the elementary level, showed the highest percentage of mastery on Numeration (58.9 percent), Numerical Reasoning (46.4 percent), and Geometry (40.1 percent). The students on the high-school level showed mastery in the functional-applications subtests, Money (42.4 percent) and Measurement (36.4 percent), and the content subtest, Fractions (39.4 percent). The latter assesses the understanding of basic concepts about fractions rather than operations.

OBJECTIVE 6. MASTERY OF CAREER EDUCATION SKILLS

Project Trabajo provided middle- and high school-level students with career education instruction. The objective of this instruction was that by June, 1981, 80 percent of the Project TRABAJO students would attain a

TABLE 10

RELATIVE PERCENTAGE OF TOTAL POPULATION
MASTERING SKILLS IN SUBTESTS OF THE
KEYMATH DIAGNOSTIC TEST
BY SCHOOL LEVEL

<u>Subtest</u>	<u>Elementary</u>	<u>Middle</u>	<u>High School</u>
Numeration	56.4%	58.9%	27.3%
Fractions	29.5%	19.6%	39.4%
Geometry	53.8%	40.1%	27.3%
Addition	28.2%	19.6%	18.2%
Subtraction	46.2%	30.4%	30.3%
Multiplication	25.6%	17.9%	6.1%
Division	17.9%	8.9%	15.2%
Mental Computation	20.5%	17.9%	24.2%
Numerical Reasoning	41.0%	46.4%	24.2%
Word Problems	3.8%	1.8%	18.2%
Missing Elements	11.5%	10.7%	6.1%
Money	19.2%	19.6%	42.4%
Measurement	15.4%	7.1%	36.4%
Time	43.6%	33.9%	9.1%

score of at least 80 percent (the operational definition of mastery) on the subtests of the Career Education Assessment Instrument related to the career education topics in which they were instructed. The instrument was adapted from the Social and Prevocational Information Battery, with the permission of the publisher, by project personnel during the 1979-80 funding year. The test was administered to the Project TRABAJO students during May, 1981, in a post-test only design. The instrument consists of seven subtests with a total of 80 items. The subtests examine the following career education areas: Functional Vocabulary; Purchasing; Banking; Job-Related Behavior; Job-Related Skills; Home Management Skills; and Health, Hygiene, and Grooming. The scores that were analyzed were derived from the subtests in which each student received instruction. Accordingly, the number of scores analyzed for each subtest varied.

Table 11 presents a summary of pupil performance on the Career Education Assessment Instrument. For each of the seven subtests, the table presents the number of students receiving related instruction, the percentage of those students attaining mastery (i.e., the criterion score of 80 percent), and the mean percentage score. Across all subtests, the percentage of students achieving a score of 80 percent was 72.7 percent; the criterion for the program objective was 80 percent. The mean score across all subtests was 83.8 percent.

Inspection of the data in Table 11 by subtest reveals that the criterion for the objective was attained for three of the seven subtests: Functional Vocabulary (83.3 percent attained mastery); Banking (82.3 percent); and Home Management (82.6 percent). The highest mean score observed for the students was 90 percent for Functional Vocabulary.

TABLE 11

SUMMARY OF PUPIL PERFORMANCE ON THE CAREER
EDUCATION ASSESSMENT INSTRUMENT
(PROJECT TRABAJO STUDENTS)

<u>Subtest</u>	<u>Number of^a Students</u>	<u>Percentage^b of Mastery</u>	<u>Mean^c Score</u>
Functional Vocabulary	48	83.3%	90 %
Purchasing	49	63.3%	78.5%
Banking	18	82.3%	87.7%
Job Related Behavior	43	58.1%	79.0%
Job Related Skills	28	78.4%	86.0%
Home Management	46	82.6%	86.0%
Hygiene and Grooming	33	<u>66.6%</u> 72.7%	<u>81.5%</u> 83.8%

^aNumber of students receiving instruction in subtest area.

^bPercentage of students instructed in subtest area that scored at least 80 percent.

^cMean percentage of items correct for students instructed in subtest area.

.Across all subtests, 72.7 percent of the students receiving related instruction scored at least 80 percent; the criterion for the objective (80 percent) was not attained.

.The criterion was attained for three subtests: Banking, Job-Related Skills, and Home Management Skills.

Although the criterion for the career education objective was not attained, further analysis of the data suggested that the program did have an impact upon the career education skills of the Project TRABAJO students. To determine whether program instruction significantly affected the scores of the pupils on the Career Education Assessment Instrument, the mean scores of those students receiving instruction and those students not receiving instruction were compared within each of three subtests: Banking, Job-Related Skills, and Health, Hygiene, and Grooming. These three subtests were selected for comparison since there were sufficient numbers of students receiving and not receiving related instruction to permit meaningful analysis. For each subtest, the scores of the subjects in both groups (i.e., instructed and not instructed) were rank ordered from low to high along a single continuum. The mean ranks for the two groups were compared through the Mann Whitney U tests. Table 12 presents a summary of these analyses. For all three subtests, the mean rank of the instructed group was significantly higher than that for the non-instructed group. For Banking, the mean ranks for the instructed and non-instructed groups were 40.6 and 29.4, respectively ($Z = 2.35$, $N = 66$, $p < .01$); for Job-Related Skills, the means ranks were 43.2 and 21.8, respectively ($Z = 4.58$, $N = 65$, $p < .01$); and for Health, Hygiene and Grooming, the mean ranks were 41.3 and 19.8, respectively ($Z = 4.52$, $N = 65$, $p < .01$). Across the three subtests, the mean score (percentage correct) was 84.6 for the instructed group and 72.9 for the non-instructed group.

TABLE 12

COMPARISONS OF THE MEAN RANKS OF SCORES OF INSTRUCTED
AND NON-INSTRUCTED PROJECT TRABAJO STUDENTS
FOR THREE SUBTESTS OF THE CAREER/EDUCATION ASSESSMENT INSTRUMENT

<u>SUBTEST</u>	<u>GROUP</u>	<u>N</u>	<u>MEAN^a SCORE</u>	<u>MEAN^b RANK</u>	<u>^c U</u>	<u>Z</u>
Banking	Instructed	24	87.7	40.6	333.0	2.35**
	Non-Instructed	42	86.7	29.4		
Job-Related Skills	Instructed	34	86.0	43.2	180.0	4.58**
	Non-Instructed	31	64.0	21.8		
Hygiene and Grooming	Instructed	40	81.5	41.3	169.0	4.52**
	Non-Instructed	25	60.6	19.8		

** $p < .01$

^a Mean percentage of items answered correctly.

^b Mean rank of the scores of each group along a single continuum from low to high.

^c Mann-Whitney U statistic

- For all three subtests, the mean ranks of the scores of the students receiving instruction were significantly higher than those of the students not receiving instruction; i.e., the instructed students demonstrated better career education skills than those not receiving instruction.

IV. CONCLUSIONS AND RECOMMENDATIONS

The conclusions of the evaluation concern (1) the impact of Project TRABAJO and Chapter 720 upon pupil achievement, based on the analyses of test data, and (2) the quality of implementation, based on classroom observations and interviews. Although, for the most part, these conclusions pertain to the programs collectively, where identifiable, the individual effects of each program are indicated.

Analyses of pupil achievement data indicated that five of the six objectives for these programs were attained: the objectives were attained for reading in English and Spanish, oral proficiency in English and Spanish, and mathematics; these areas were affected by both programs. Although supplementary analysis revealed a statistically significant program effect, the objective for career education was not attained; this objective was specific to Project Trabajo.

Comparison of these findings with those for the 1979-80 funding year indicate gains in two areas. While the objectives for reading and oral proficiency in Spanish were attained last year, the objectives for reading and oral proficiency in English were not attained; all four objectives were attained for the 1980-81 funding year. Thus, relative to last year, this year's program cycle was more effective in promoting growth in mainstream-language skills.

On the other hand, the career-education objective was attained in 1979-80 but not in 1980-81. However, the employment of a more rigorous criterion (i.e., a score of 80 percent by 80 percent of the students) for the present year relative to last year (i.e., a mean of 80 percent) renders this finding inconclusive. Indeed, the mean percentage score for the present year (83.8

percent) was slightly higher than that for last year (82 percent).

While the programs functioned cooperatively, observations were made of their separate operations. Accordingly, the conclusions concerning the quality of implementation are presented separately for each program.

Observations of Project TRABAJO revealed the following program strengths:

- the program was closely and effectively supervised by the program coordinator who maintained continuous communications with agency and site administrators;
- all program personnel were enthusiastic and demonstrated knowledge of and skill in both bilingual education and special education;
- the staff-development component was comprehensive, relevant, and varied, including in-service workshops, on-site training, and academic instruction;
- the program coordinator and resource specialists, provided strong support for the classroom teachers;
- the staff demonstrated sensitivity and awareness to cross-cultural differences and provided activities that bolstered the students' knowledge and esteem for the native and mainstream cultures;
- systematic instruction in both Spanish and English promoted the students' confidence and skill in both languages; and
- effective coordination of both programs optimized the impact upon the target students.

Although the program has proven to be a superior one, the following recommendations are offered with a view toward strengthening an already impressive performance. Accordingly, it is recommended that:

- the program continue and expand efforts to identify, create, or adapt curriculum materials appropriate for the target population;
- the program continue to secure the involvement of parents in the educational process;

- communications with cooperating agencies such as the Committees on the Handicapped be increased to ensure that proper input is received concerning each child's needs;
- appropriate funds be allocated for the further development of instructional materials which match the linguistic and cognitive levels of L.E.P. mentally-retarded students;
- consideration be given to allocating funds to develop and standardize tests for the target population in language proficiency;
- teachers receive additional training in identifying the communication skills students need to participate more fully in classroom learning; and
- based on the evaluations of quantitative and qualitative data this program ought to be refunded.

The Chapter 720 program generally appeared quite successful in enhancing the educational process for bilingual mentally-retarded students. The program's success appears attributable to (1) the improved individualization of instruction resulting from the classroom assignment of paraprofessionals and the demonstrated competence and creativity of these paraprofessionals in both direct instruction and materials development. The strength of this program seemed to rest in the recruitment of high calibre personnel who had the requisite linguistic, cultural, and personal qualities needed to make the educational environment pedagogically sound and psychologically secure. The students benefited immensely from the presence of the paraprofessionals who added emotional as well as instructional support.

Recommendations for this meritorious program are as follows:

- recruitment of paraprofessionals should continue to emphasize strong linguistic skills in both English and Spanish, and bicultural skills;

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--staff development workshops should continue to strengthen the instructional skills of paraprofessionals in E.S.L., reading, and mathematics; and

--the involvement of paraprofessionals in developing their own materials for the curriculum should continue.

On the basis of the gains in student performance, as well as the observed motivation and responsiveness of the students to the paraprofessionals, it is strongly recommended that this program be refunded.